Seminar and Roundtable on Coalbed Methane Development and Potential

SOUTH AFRICA

September 10, 1998 *Country Fact Sheet*

Current CBM Activities

- Springbok Flats Feasibility Study

Key Factors in Energy Economy

- South Eskom, South Africa's state electric company, presently generates about 96 percent of South Africa's electricity and accounts for about half of the generation for the entire African continent. Over 90 percent of electricity generation is coal-fired.
- Almost a total lack of oil and gas reserves, its abundant coal reserves, and years of international embargoes and isolation led South Africa to build a highly developed synthetic fuels industry. In fact, of the 140,000 barrels of oil produced daily, 130,000 barrels are produced synthetically from the processing of coal to oil. South Africa consumes about 400,000 barrels of oil per day. Proven oil reserves are about 40 million barrels.
- Natural gas reserves are about 826 billion cubic feet (1996). Although natural gas production currently meets the yearly consumption of about 69.2 billion cubic feet, additional supplies will soon be needed to supply the increasing demand.
- In 1996 net coal exports were 65.9 million short tons. South Africa is the 5th largest producer of coal in the world with production at 227.5 million short tons, and consumption at 164.7 million short tons.
- Coal presently accounts for, in one way or another, the vast majority (~98 percent) of South Africa's energy production and approximately 78 percent of total energy consumption.

Potential Role of CBM in Energy Economy

- South Africa contains the seventh largest coal reserves in the world (~60 billion short tons).
- Due to the large reserves (as discussed above), CBM could

become a viable and profitable energy source for South Africa.

- CBM could forestall the future need to import natural gas.

CBM Potential

- Several areas have been identified as having potential for CBM development.
- More mines are expected to open where CBM technologies could be incorporated at the same time. If these mines are not approved by government officials in response to environmental activism, Sasol (South Africa's third largest coal producer) will have to explore other ways to further expand production at its already existing room-and-pillar mines.
- Evidence of the gas potential arises from a long record of gas-related mine explosions.

Existing Policies Affecting CBM Development

- Minerals Act, 1991
- Coalbed Methane is defined under law as a mineral in its own right. Therefore, two companies can have rights to a gassy seam—one for coal and one for methane.
- "Ring-fencing"

Overseeing or Permitting Government Agencies

Mineral and Energy Affairs
Department of Mineral Affairs
Dr. Church Synodal Center, 234 Visagie Street
Private Bag X59
Pretoria 0001
Phone: 012 317.9127
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Potential Barriers to CBM Development

- Allocation of ownership rights has not yet been determined (except

in the Springbok Flats Project).

- Current government subsidies are deterring foreign investment.
- Treatment of development costs which preclude the write-off "ring-fencing" of development costs against other income.
- The potential for preferential tax treatment.
- Political changes within in the country have created a situation where dramatic improvements are needed in the country's infrastructure in order to enable it to meet the needs of all its people.
- Transition from energy self-sufficient policies to new energy policies.

Donors/ Companies/ Investors Active in CBM

U.S. Trade and Development Agency, U.S. Department of Energy, Natural Buttes Gas Corporation, Advanced Resources International, Southern African Development Community, Department of Minerals and Energy Affairs

Springbok Flats Feasibility Study

Contact Information

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Status

Pre-Feasibility study completed in January 1996. Feasibility study is not yet completed. Currently engaged in study and preliminary drilling.

Location

Springbok Flats, Northeast Transvaal - rural areas of Lebowa, Venda, and Gazankula

Technical Summary

The feasibility study includes "the geotechnical assessment of the extent of the CBM resources, determination of economic recovery including pilot production, a detailed inventory of possible natural gas markets and applicable gas pricing, and a detailed economic analysis of all aspects of the project. The study would include an environmental impact assessment that would encompass an evaluation of the benefit of natural gas substitution for coal and firewood heat energy."

Estimated Capital and O&M Costs

The Feasibility Study Program allocated US$338,000 for this project. Fifty percent is budgeted to the verification of gas content and reserves, 45% to production characteristics, and the balance to market research and environmental effects.

- U.S. Trade and Development Agency has provided $137,000 for a feasibility study.

Sources of Revenue

- Could be used for gas-fired thermal power generation in off-grid areas
- Potential for recovery of potable water for household and agricultural use, which can be produced in conjunction with the CBM recovery process.

Proponents/ Sponsors of the Project

- U.S. Trade and Development Agency
- U.S. Department of Energy
- Southern African Development Community
- Department of Minerals and Energy Affairs
- Advanced Resources Inc.

Lessons Learned

The pre-feasibility study analysis indicated a potential methane production of 25 million st. ft^3 which could be absorbed by markets in the immediate vicinity. Based on these conclusions, a recommendation was made to proceed with a budgeted risk-managed exploration program to confirm the production potential through exploratory drilling and to quantify the risk potential through in-situ gas recovery parameter evaluation.